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Crew Resource Management Use in U.S. Air Force Flight and Family Medicine Clinics

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14. ABSTRACT
Crew resource management (CRM) is the effective use of all available resources—human, equipment, and information—to ensure mission completion and reduce mishaps. The purpose of this study was to describe patient safety-related attitudes of U.S. Air Force flight surgeons and family physicians and ascertain the impact of Team Strategies and Tools to Enhance Performance and Patient Safety (TeamSTEPPS), Patient Centered Medical Home (PCMH), and aviation CRM (aCRM) training on those attitudes. Active duty Air Force flight and family medicine physicians were surveyed in a cross-sectional manner with a web-based, Air Force enhanced Safety Attitudes Questionnaire (SAQ). Responses were scored according to published SAQ computation scales and analyzed with Excel statistical tools and SPSS statistical software. Attitudes among Air Force flight surgeons and family physicians were similar to one another, generally positive with regard to teamwork, safety, and stress recognition, and less so in other SAQ domains. Training in TeamSTEPPS, PCMH, and aCRM was not associated with more positive patient safety-related attitudes. Air Force physicians trained in CRM-related concepts did not perceive higher levels of teamwork, safety, job satisfaction, stress recognition, confidence in leadership, or work conditions. Rank and major command as covariates were weakly associated with differences in attitudes. Training in TeamSTEPPS, PCMH, or aCRM was not associated with improvement in safety-related attitudes among Air Force flight surgeons or family physicians. Further study is warranted to ascertain the effectiveness of such programs, either in their concepts, deployment, and/or sustainment.

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Aviation, flight medicine, family medicine, crew resource management, CRM, Safety Attitude Questionnaire, SAQ, Patient Centered Medical Home, PCMH, TeamSTEPPS, teamwork, resource utilization, leadership, Air Force Medical Service, stress, job satisfaction

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Crew resource management (CRM) is the effective use of all available resources—human, equipment, and information—to ensure mission completion and reduce mishaps. The purpose of this study was to describe patient safety-related attitudes of U.S. Air Force flight surgeons and family physicians and ascertain the impact of Team Strategies and Tools to Enhance Performance and Patient Safety (TeamSTEPPS), Patient Centered Medical Home (PCMH), and aviation CRM (aCRM) training on those attitudes. Active duty Air Force flight and family medicine physicians were surveyed in a cross-sectional manner with a web-based, Air Force enhanced Safety Attitudes Questionnaire (SAQ). Responses were scored according to published SAQ computation scales and analyzed with Excel statistical tools and SPSS statistical software. Attitudes among Air Force flight surgeons and family physicians were similar to one another, generally positive with regard to teamwork, safety, and stress recognition, and less so in other SAQ domains. Training in TeamSTEPPS, PCMH, and aCRM was not associated with more positive patient safety-related attitudes. Air Force physicians trained in CRM-related concepts did not perceive higher levels of teamwork, safety, job satisfaction, stress recognition, confidence in leadership, or work conditions. Rank and major command as covariates were weakly associated with differences in attitudes. Training in TeamSTEPPS, PCMH, or aCRM was not associated with improvement in safety-related attitudes among Air Force flight surgeons or family physicians. Further study is warranted to ascertain the effectiveness of such programs, either in their concepts, deployment, and/or sustainment.

2.0   BACKGROUND

Crew resource management (CRM) has been defined as the effective use of all available resources, whether human, equipment or information, to ensure mission completion and to reduce mishaps. Its origins are traced to a 1979 workshop hosted by the National Aeronautics and Space Administration, at which researchers presented evidence that the majority of aviation mishaps were due to human error. Soon thereafter, commercial airline companies began overhauling flight deck culture by incorporating CRM concepts among aircrew. CRM components include enhancing safety through "leveling" decision-making among aircrew hierarchy while enhancing teamwork, communication, and task allocation [1]. Nearly 35 years later, CRM has a proven record of reducing mishaps in several industries, most notably aviation, nuclear power, and space [2]. However, it is much less studied in medicine, especially outpatient care.

Because of their dual role as physicians and aircrew, flight surgeons might seem to be logical conduits for implementation of CRM within the Air Force Medical Service (AFMS). However, efforts to integrate CRM concepts into military medical treatment facilities have been focused *outside* of flight medicine, through Team Strategies and Tools to Enhance Performance and Patient Safety (TeamSTEPPS) and the Patient Centered Medical Home (PCMH).

2.1   TeamSTEPPS

TeamSTEPPS is a "teamwork system designed for health care professionals that [was]… developed by the Department of Defense's Patient Safety Program in collaboration with the Agency for Healthcare Research and Quality" [3]. The inspiration for TeamSTEPPS was a 1999

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Institute of Medicine report entitled "To Err is Human," which "concluded that medical errors cause up to 98,000 deaths annually" [4]. According to the agency's website, implementation typically involves a pretraining assessment for site readiness, onsite training, and tools for implementation and sustainment. Five regional training centers comprise the core by which national implementation is pursued.

2.2 PCMH

The first use of the term "medical home" is traced to a 1967 book published by the American Academy of Pediatrics proposing that "every child deserves a medical home" and advocating for a centralization of pediatric medical records and care [5]. Since then, the PCMH has been developed further and, in 2007, was formally embraced by the American College of Physicians, American Academy of Family Physicians, and the American Osteopathic Association [6]. Despite the fact that primary care in the U.S. faces "formidable challenges" (such as declining workforce and reimbursements), the goal of the medical home model is to provide care that is of high quality, safe, comprehensive, patient-centric, coordinated, and accessible [7].

2.3 Safety Attitudes Questionnaire (SAQ)

The SAQ traces its lineage through the Intensive Care Unit Management Attitudes Questionnaire to the Flight Management Attitudes Questionnaire, which was originally developed in the wake of research that established that most airline accidents were a result of breakdowns in interpersonal aspects of aircrew relationships. The SAQ is designed to provide a "snapshot" of frontline worker perceptions on the unit's safety climate (vs. *culture*, which includes other, less measurable components, such as behavior, values, and competencies) [2].

3.0 STUDY OBJECTIVE AND DESIGN

The purpose of this study was to describe patient safety-related attitudes of U.S. Air Force flight surgeons and family physicians, and to ascertain the impact of TeamSTEPPS, PCMH, and aCRM training on those attitudes. We asked the question, "Are CRM-related initiatives, whether TeamSTEPPS, PCMH or aCRM, associated with more positive patient safety-related attitudes in Air Force physicians?" We hypothesized that SAQ scores would be higher in physicians who had been trained in these initiatives compared to those who had not. We also wanted to look at specialty, rank, gender, and major command (MAJCOM) affiliation to see if any of these covariates might explain any variation in individual domain scores.

The study was designed as a cross-sectional quantitative analysis. Inclusion criteria were active duty Air Force base-level flight surgeons and family physicians assigned to an Air Force medical treatment facility. The study apparatus was an online, enhanced version of the SAQ-Short, which we have called AFeSAQ. The short version of the SAQ uses 36 questions to test six different domains: Teamwork Climate, Safety Climate, Job Satisfaction, Stress Recognition, Perceptions of Management (questions were asked at two different levels, management at the unit level in which the individual worked and at the higher hospital or clinic level), and Work Conditions (Table 1).

Table 1. Safety Attitudes Questionnaire (Short Version)

Domain	Question
Teamwork Climate	1. Nurse input is well received in this clinical area.
	[a]2. In this clinical area, it is difficult to speak up if I perceive a problem with patient care.
	3. Disagreements in this clinical area are resolved appropriately (i.e., not who is right, but what is best for the patient).
	4. I have the support I need from other personnel to care for patients.
	5. It is easy for personnel here to ask questions when there is something that they do not understand.
	6. The physicians and nurses here work together as a well-coordinated team.
Safety Climate	7. I would feel safe being treated here as a patient.
	8. Medical errors are handled appropriately in this clinical area.
	9. I know the proper channels to direct questions regarding patient safety in this clinical area.
	10. I receive appropriate feedback about my performance.
	[a]11. In this clinical area, it is difficult to discuss errors.
	12. I am encouraged by my colleagues to report any patient safety concerns I may have.
	13. The culture in this clinical area makes it easy to learn from the errors of others.
Job Satisfaction	15. I like my job.
	16. Working here is like being part of a large family.
	17. This is a good place to work.
	18. I am proud to work in this clinical area.
	19. Morale in this clinical area is high.
	20. When my workload becomes excessive, my performance is impaired.
	21. I am less effective at work when fatigued.
	22. I am more likely to make errors in tense or hostile situations.
	23. Fatigue impairs my performance during emergency situations (e.g., emergency resuscitation, seizure).
Perceptions of Management[b]	24. Management supports my daily efforts.
	25. Management doesn't knowingly compromise patient safety.
	26. Management is doing a good job.
	27. Problem personnel are dealt with constructively by our:
	28. I get adequate, timely info about events that might affect my work from:
	29. The levels of staffing in this clinical area are sufficient to handle the number of patients.
Working Conditions	30. This hospital does a good job of training new personnel.
	31. All the necessary information for diagnostic and therapeutic decisions is routinely available to me.
	32. Trainees in my discipline are adequately supervised.
Uncategorized[c]	14. My suggestions about safety would be acted upon if I expressed them to management.
	33. I experience good collaboration with extenders (nurses, techs, PAs, etc.) in this clinical area.
	34. I experience good collaboration with staff physicians in this clinical area.
	35. I experience good collaboration with pharmacists in this clinical area.
	[a]36. Communication breakdowns that lead to delays in delivery of care are common.

[a]Items are REVERSE scored so that higher score reflects positive attitude.
[b]Asked of two levels: unit and hospital/clinic leadership.
[c]Not included in the six domains.

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Our version of the SAQ (the AFeSAQ) also asked four direct questions that queried the physician's perspective as to the impact of TeamSTEPPS, PCMH, and aviation CRM (aCRM). We prefaced each set of four questions by asking respondents if the initiative had been implemented in the unit in which they worked and if they had been personally trained in the respective program. The four questions that were asked of each training venue are as follows:

- TeamSTEPPS (or PCMH or aCRM) has improved the effective use of available human, equipment, and information resources.
- TeamSTEPPS (or PCMH or aCRM) has improved communication skills, teamwork, task allocation, and decision-making.
- TeamSTEPPS (or PCMH or aCRM) has contributed to a working environment in which fewer mistakes are made.
- I enjoy my working environment more as a result of TeamSTEPPS (or PCMH or aCRM).

4.0   METHODS

After approval by a local Institutional Review Board and the Commander, Air Force Medical Operations Agency, respondents were recruited by email, sent out through the respective consultants to the Air Force Surgeon General. Two follow-up emails appealed for additional volunteers. The survey was administered through www.surveymonkey.com and took approximately 15 minutes to complete. At the close of the study period, responses were downloaded from the website in the form of a Microsoft Excel spreadsheet, which was fed into SPSS Statistics for statistical processing.

As per the standardized instructions, negatively worded items on the SAQ (questions 2, 11, 36) were reverse scored. Mean individual scores were calculated for each domain, then converted to a 100-point score. This was accomplished by taking the mean on the 5-point Likert scale, subtracting 1 from it, then multiplying the result by 25. Consistent with other published articles [8], we set the cutoff for positive attitudes at scores that were at or above 75.0 (corresponding to 4.0, "Agree slightly"). The two scales correlate as follows.

5-Point Likert	100-Point
5.0 Agree strongly	100
4.0 Agree slightly	75*
3.0 Neutral	50
2.0 Disagree slightly	25
1.0 Disagree strongly	0

*Cutoff for a positive score.

Analysis began with the use of multivariate analysis of covariance (ANCOVA), in which training in TeamSTEPPS, PCMH, or aCRM served as independent variables, and SAQ domain scores (and our additional four questions) as dependent variables. Covariates included group (flight surgeon versus family physician), rank, gender, and MAJCOM. Significant covariate effects were further analyzed with Spearman's correlation and one-way ANCOVA. The "extra" questions regarding training effect were analyzed with analysis of variance (ANOVA).

5.0 RESULTS

Based upon information from U.S. Air Force Surgeon General consultants, our potential survey pool was 322 flight surgeons and 300 family physicians, for a total of 622. We received 269 responses from 143 flight surgeons (44% response rate), 78 family physicians (26% response rate), and 38 in which the grouping could not be determined. Eighty surveys were discarded, 46 due to either incomplete responses or inability to determine subject grouping and 34 that were designated as "leader," leaving 123 flight surgeons and 66 family physicians. "Leaders" were either assigned to MAJCOMs or served as commanders at the squadron or group level. Since this study specifically targeted only base-level flight surgeons or family physicians working full time (or nearly so) in Air Force flight or family medicine clinics (i.e., "frontline" workers), the leadership group could not be considered a random sample and therefore was also excluded from this analysis, leaving us with a working respondent pool of 189.

Males comprised 142 (75%) of the respondents, whereas 47 (25%) were female. Eighty-four respondents (44%) were captains, 51 (27%) majors, 40 (21%) lieutenant colonels, and 14 (7%) colonels.

For responses by MAJCOM, see Table 2. Air Combat Command (37 responses) and Air Mobility Command (34) contributed the most responses, while the fewest were received from Pacific Air Forces (4) and Air Forces Central Commands (0, as the command's relatively few providers would likely be in a deployed setting and thus unavailable).

Table 2. Respondents by MAJCOM[a]

MAJCOM	Respondents
Air Combat Command	37
Air Mobility Command	34
United States Air Forces – Europe	22
Air Force Materiel Command	20
Other	19
Air Education and Training Command	18
Air Force Special Operations Command	14
Air Force Space Command	12
Air Force Global Strike Command	09
Pacific Air Forces Command	04
Air Forces Central Command	0

[a]Retained surveys only.

One hundred three (83.7%) flight surgeons and 58 (87.9%) family physicians indicated that TeamSTEPPS had been implemented in their respective units. However, only 72 (58.5%) flight surgeons and 39 (59.1%) family physicians affirmed that they had been personally trained in TeamSTEPPS. Similarly, 28 (22.8%) flight surgeons and 52 (78.8%) family physicians indicated that PCMH had been implemented in their respective units. Only 18 (14.6%) flight surgeons and less than half (32, or 48.5%) of family physicians indicated that they had been personally trained in PCMH. One hundred nine (88.6%) flight surgeons and 17 (25.8%) family physicians had been personally trained in aCRM.

Regardless of grouping, three of the six domains (Teamwork Climate, Safety Climate, and Stress Recognition) scored at least 75, reflecting positive attitudes. The other three, Job Satisfaction, Perceptions of Management, and Work Conditions, all averaged considerably

lower. Using ANOVA, there were no significant differences noted between flight surgeons and family physicians on overall mean scores for any of the domains (Figure 1).
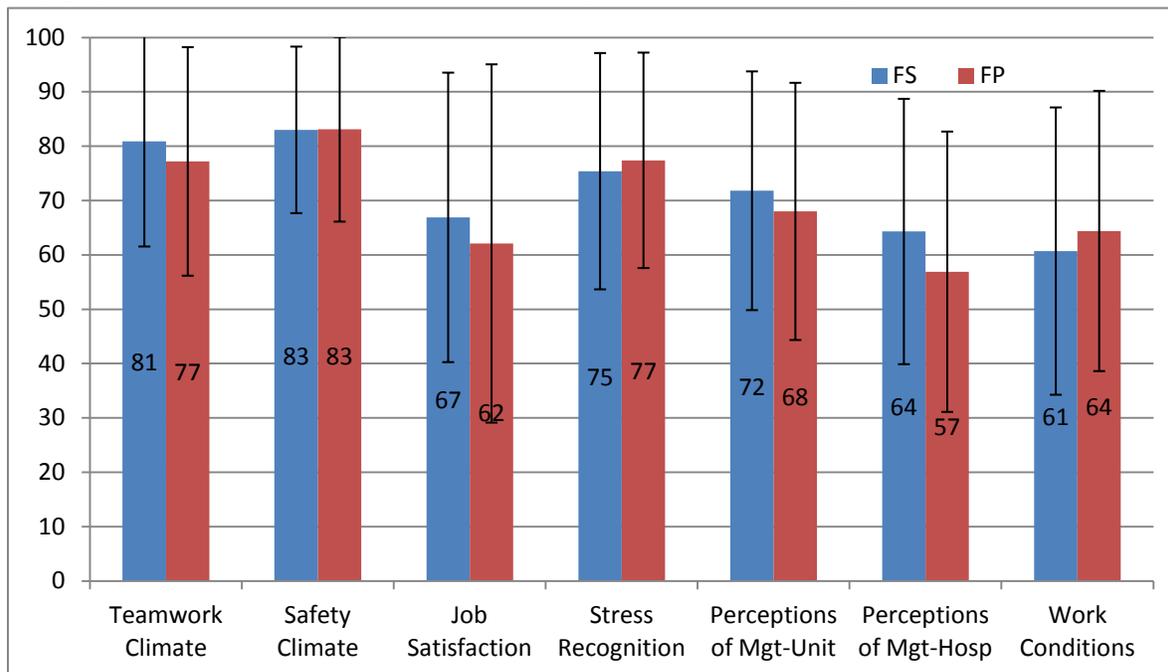
Figure 1. Mean SAQ Domain Scores (with standard deviation bars; ≥75.0 reflects positive attitude)

In regards to the impact of CRM-like initiatives on attitudes, no significant fixed effects on SAQ domains were seen with any of the types of training (Table 3). In other words, TeamSTEPPS, PCMH, and aCRM did not improve SAQ scores (i.e., result in more positive attitudes). However, rank did have a significant effect (.017) on most SAQ domains (all except Safety Climate and Stress Recognition). MAJCOM also had a significant effect (.013), but on Job Satisfaction only. For respondents who had received more than one of the types of training, no significant interaction effects were seen.

Table 3. Effect of Training on SAQ Domains (ANCOVA)

Training	Value	F-value	Hypothesis Degrees of Freedom	Error Degrees of Freedom	p-value	Observed Power
TeamSTEPPS	0.955	1.163	7	172	0.326	0.045
PCMH	0.976	0.597	7	172	0.758	0.024
aCRM	0.963	0.946	7	172	0.472	0.037

Increasing rank correlated with higher responses (Figure 2). However, the effect was weak, with the highest correlation seen in perceptions of management at the hospital/clinic level (Spearman's correlation of only 0.266; a Spearman's correlation of 0.000 would indicate no correlation between rank and domain score, while perfect correlation would be 1.000).

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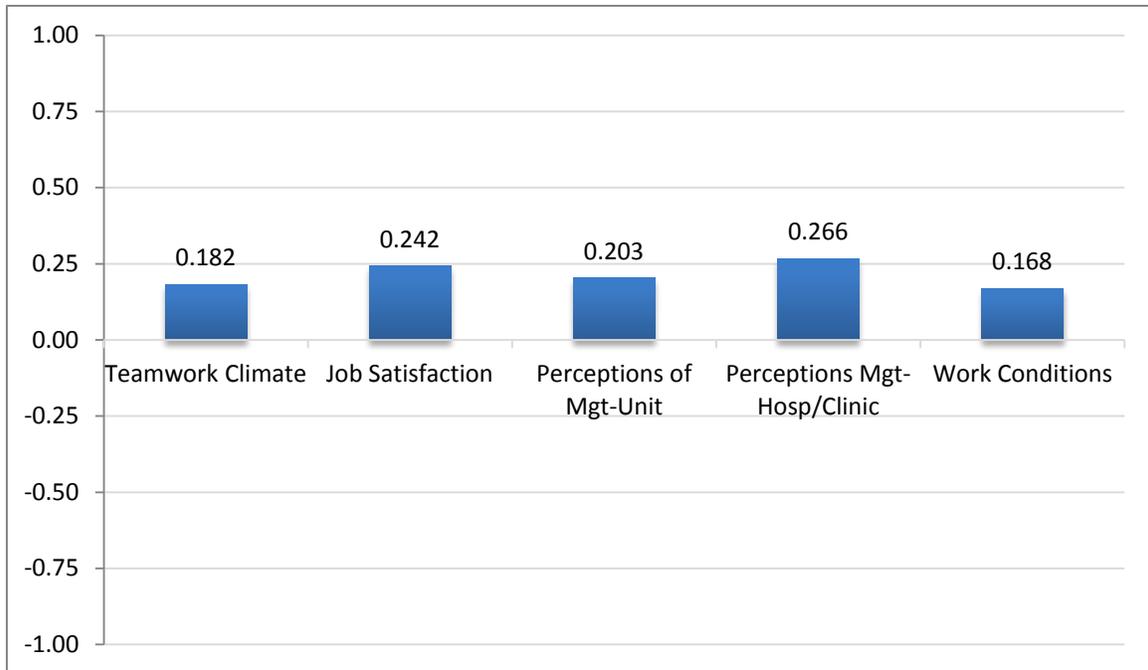
Figure 2. Rank Covariate Effect on SAQ Domain Scores (Spearman's Correlation)

Interestingly, in post-hoc analysis, ANOVA failed to show a significant difference in the effect of MAJCOM on job satisfaction. However, when an ANCOVA was run with rank as a covariate, an effect was seen. In other words, MAJCOM's effect was only seen in the presence of rank. That effect was weak (partial eta squared of 0.108) and was seen between AETC, which had a mean job satisfaction score of 80.6, and AMC, whose mean was 53.5.

In addition to the SAQ, respondents were asked directly for their perspective on the impact of each of the three types of training. As with the SAQ, a 5-point Likert scale was used, ranging from strongly disagree to strongly agree, then converted to a 100-point score (Table 4).

After grouping (as flight surgeons or family physicians), results for all four questions were pooled to get a mean score for each type of training. Overall means were low (i.e., less than the cutoff of 75.0), reflecting a less than positive attitude towards the impact of each initiative (Figure 3). Using ANOVA, only TeamSTEPPS showed a significant difference between groups, as flight surgeons' perspective of the impact of TeamSTEPPS was significantly lower (38.2) than family physicians' perspective (52.3). While this portion of the survey has not been validated, the results were consistent with the lack of positive effect of training seen on SAQ domain scores.

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Table 4. Impact Questions[a]

Impact Question	TeamSTEPPS		PCMH		aCRM	
	FS	**FP**	**FS**	**FP**	**FS**	**FP**
TeamSTEPPS/PCMH/aCRM has improved the effective use of available human, equipment, and information of resources	38.4	52.6	42.3	53.4	63.0	53.3
TeamSTEPPS/PCMH/aCRM has improved communication skills, teamwork, task allocation, and decision-making	40.7	55.3	51.0	61.1	65.9	56.7
TeamSTEPPS/PCMH/aCRM has contributed to a working environment in which fewer mistakes are made	40.5	52.6	45.2	55.0	65.1	55.0
I enjoy my working environment more as a result of TeamSTEPPS/PCMH/aCRM	33.2	48.7	48.1	52.9	59.6	55.0

[a]Mean scores ≥ 75.0 reflect positive attitudes. FS = flight surgeon; FP = family physician.
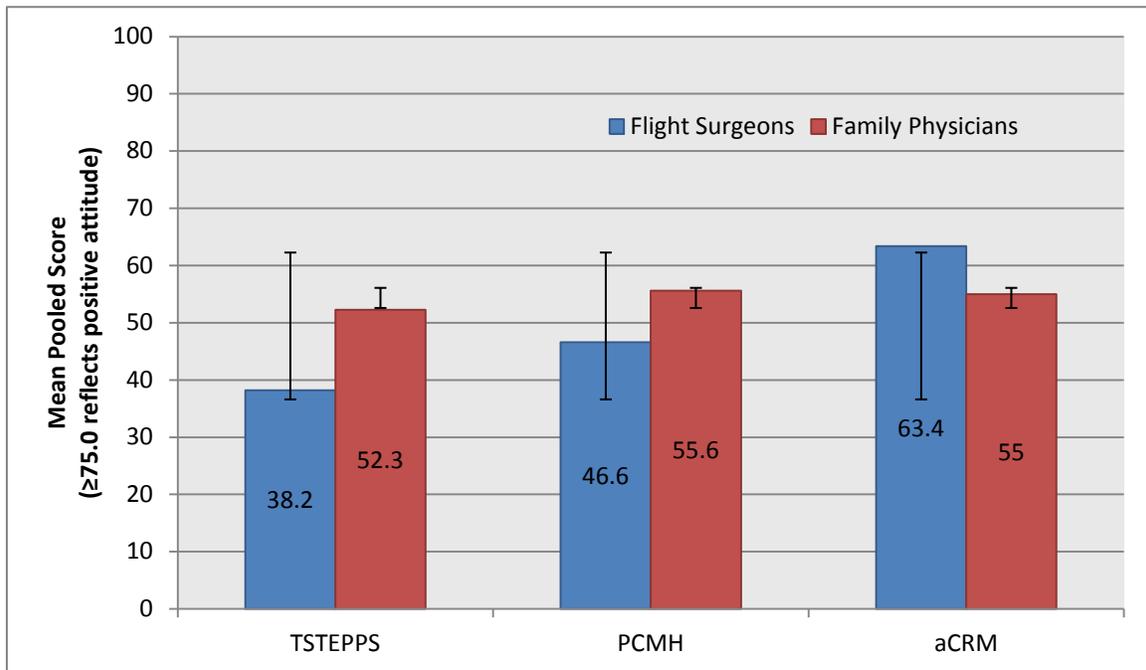

Figure 3. Impact Questions (Mean Pooled Scores)

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6.0 DISCUSSION

A literature search for objective research on the impact and effectiveness of TeamSTEPPS within the military health system yielded very few studies. Nevertheless, similar team training initiatives in the civilian sector have experienced positive results. For example, medical team training of a California university hospital operating staff produced sustained improvement in team function, including fewer delays and hand-off issues, improved case scores, and improved compliance with antibiotic administration guidance [9]. A Yale University obstetrics patient safety program resulted in fewer adverse outcomes and improved staff SAQ scores over a 3-year period [10]. Implementation of the World Health Organization's Safe Surgery Checklist in eight hospitals reduced post-operative complications and improved clinician SAQ scores [11], and CRM training in a large Swiss women's hospital resulted in positive changes in SAQ teamwork and safety climate scores [12].

PCMH has been studied more extensively within the military health system, with encouraging, albeit varying, results. For example, PCMH was associated with improved access to care, reduced emergency department utilization, improvement in Healthcare Effectiveness Data and Information Set measures, and increased job satisfaction, 2 years after implementation in a Naval medical treatment facility [13]. At the National Naval Medical Center (NNMC), cost savings were greatest for patients with chronic medical conditions requiring periodic care [14]. An Army family practice pilot study resulted in similar findings [15].

In our survey, TeamSTEPPS, PCMH, and aCRM were not associated with increasing patient safety-related positive attitudes amongst primary care providers, as measured by SAQ scores.

The relatively low scores deserve further study, although they are not uncommon, particularly among physicians [8]. This may be due to a variety of reasons. First, they may reflect a flaw in the models themselves (TeamSTEPPS, PCMH, and aCRM). The belief that TeamSTEPPS, PCMH, or aCRM were flawed was not our preliminary hypothesis, although this study did little to counter that prejudice. Second, some studies have reported resistance within the health care professions to CRM concepts, such as using checklists [16], contending that they are inappropriate and ineffective in medicine [17]. This is despite the fact that medical error rates still remain high, and many health care professionals believe that errors are not handled well in the hospital environment [18].

Perhaps more likely, the low scores may point to inadequate resourcing. In fact, the lowest score of any single SAQ item was question 29, which asked: "The levels of staffing in this clinical area are sufficient to handle the number of patients." The overall mean score for this item was 41.5, reflecting general disagreement with the statement. The low score on this question tended to "pull down" the overall score in the Perceptions of Management domain.

Low scores may also reflect insufficient training for the initiative to experience sustained success. Anecdotally, when one Air Force colleague heard the results of this study, he commented that training in TeamSTEPPS was just to "check the box" and made no significant impact. Another colleague pointed out that TeamSTEPPS is designed for inpatient care, where patient handoffs are the rule, and not for the outpatient setting. More objectively, although 79% of family physicians surveyed affirmed that PCMH had been implemented in their units, **less than half** had been trained in this AFMS-wide initiative. This appears to be consistent with the experience at NNMC's PCMH. Staff involved in the initial implementation of PCMH at NNMC

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received considerably greater support and training than those that followed, particularly after leaders who were passionate about the program either were transferred or deployed [17].

Two core values inherent to the PCMH may be self-contradicting: continuity of care and enhanced access to care. Thus, without clarification, leadership can send conflicting messages that create tension on the frontlines. Indeed, the greatest perceived threat to the survivability of PCMH amongst providers has been identified as hospital senior management [17]. Similarly, the lowest scores in our study related to this SAQ domain. Interestingly, medical team training that focused on improving staff communication at 63 Veterans Affairs medical centers showed the most improvement in the perceptions of management domain [19]. Leadership WalkRounds have also demonstrated effectiveness in positively influencing patient safety and quality, while interfacing with caregivers to secure feedback and provide support [20]. Gluck, in his article on physician leadership, explained that a "just culture" that recognizes that most errors involve system deficiencies rather than human error, as well as an engaged, "transformational" leadership, was essential to developing a culture of patient safety [21].

The lack of variability between groups and MAJCOMs is not surprising. Sexton et al. found that there was generally more variability between departments within an organization than between different organizations [2].

7.0   LIMITATIONS

First and foremost, our study's cross-sectional nature meant that we took a "snapshot" of current attitudes of a representative sample of Air Force flight surgeons and family physicians. As such, we cannot say that TeamSTEPPS, PCMH, and aCRM are ineffective at improving attitudes as measured, especially by SAQ domain scores. A prospective analysis using at least pre- and post-implementation surveys would be more effective at accurately assessing the impact of any such intervention.

Additionally, like most studies of this kind, we did not measure actual outcomes, which represent a much greater challenge. In particular, more studies comparing outcomes with attitude surveys are needed to validate the use of surveys as an inexpensive and readily usable assessment tool.

8.0   CONCLUSION

As a validated instrument for measuring safety-related attitudes and health care, the SAQ and similar instruments (such as the AFeSAQ) can be useful tools for measuring health care team perspectives regarding the effectiveness of AFMS initiatives. These tools can be easily implemented and utilized not only by higher levels of leadership, but also on the "frontlines" where service is rendered. By virtue of its organization into six discrete domains, the SAQ offers the significant advantage of providing leadership with specific targets for improvement and change [19]. Even more importantly, outcome studies are needed, which don't always correlate with physician attitude scores [22].

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For major initiatives to positively affect sustained change, concepts should be proven through field tests so that impediments to success can be identified and addressed. They should be adequately resourced; supported beyond the tenure of current leadership; and nourished with ongoing, appropriate training, the effectiveness of which should be periodically and systematically reviewed. Without sustained support, stakeholders tend to retreat into old patterns of behavior and cultural norms [17].

With a dual role as aircrew and physicians, flight surgeons are uniquely positioned to spearhead efforts to bring safety improvements such as CRM from the aviation industry into health care. Not only do Air Force flight surgeons regularly interface with the aviation community, they fly with them on a regular basis. Thus, they have the privilege of observing CRM within a culture that has so effectively embraced its use that Americans are safer flying over 500 miles an hour in a hollow tube at 35,000 feet than they are lying in a hospital bed surrounded by the best technology and technicians in history.

In the locker room at halftime of a title game, high school football player Julius Campbell replied to his coach's statement that he would accept something less than a championship. "No… Coach. With all due respect, uh, you demanded more of us. You demanded perfection. Now, I ain't saying that I'm perfect, 'cause I'm not. And I ain't gonna never be. None of us are. But we have won every single game we have played till now. So this team is perfect. We stepped out on that field that way tonight. And, uh, if it's all the same to you, Coach Boone, that's how we want to leave it" [23].

Julius had it right. No one is perfect, but teams can be, and commercial aircrew teams have developed a track record that is awfully close to perfection. The health care industry needs to figure out how and to follow suit.

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LIST OF ABBREVIATIONS AND ACRONYMS

aCRM   aviation crew resource management

AFeSAQ   Air Force enhanced Safety Attitudes Questionnaire

AFMS   Air Force Medical Service

ANCOVA   analysis of covariance

ANOVA   analysis of variance

CRM   crew resource management

MAJCOM   major command

NNMC   National Naval Medical Center

PCMH   Patient Centered Medical Home

SAQ   Safety Attitudes Questionnaire

TeamSTEPPS   Team Strategies and Tools to Enhance Performance and Patient Safety